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ABSTRACT

Student teachers, beginning teachers, and experienced teachers bring with them to the classroom a set of practical theories acquired from many experiences and influences. Because of their nature, practical theories are hard to change. Sets of more permanent practical theories can be considered practical paradigms; they are shared by the school community and are not easily relinquished by teachers. When using a practical paradigm, practitioners selectively identify those aspects of the context which allow them to use that practical paradigm even though it may be inappropriate and should either be modified significantly or discarded completely. This paper examines cases in which two high school teachers applied a practical paradigm (fixed grading policy) in situations for which it was inappropriate. The existence of the paradigm caused these teachers to be extremely selective in their observations of the particular situations and in their analysis of the problems they encountered. In the first case, a teacher intern regarded the practical paradigm as immutable; in the second case, a novice teacher applied the paradigm but had begun to question it. To effect a paradigm shift, teachers need to reflect on and evaluate both the situation and their own values and beliefs. Both preservice and inservice teacher education should include a component that would prepare teachers to do this reflection. (IAH)

Practical Theories, Practical Paradigms, and Teacher Education

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Ethical Choices and Good Teaching

Teaching is a moral activity. What I mean by this is that when teaching, a person makes numerous choices each day (Clark & Lampert, 1986) which must be decided upon based on some set of morals. That is because teaching is in itself a social activity and, therefore, entails the intervention of the teacher into students' intellectual and personal development (Tom, 1984).

John Elliott, in his paper, "Educational Theory, Practical Philosophy and Action Research (1987)" supports my claim through reference to H. G. Gadamer (1975). For Gadamer

> all understanding of human artifacts, institutions, and practices involves interpretation by an interpreter who confronts a particular concrete situation in which he or she has to make practical choices in the light of values and beliefs (Elliott, 1987, p. 159)

Thus the problems of teaching are ethical problems because they are concerned with making practical, ethical choices within the particular context of the classroom. These problems are practical problems: problems "about what to do ... whose final solution is found only in doing something, in acting (Gauthier, 1963, p. 1) The solutions to practical problems differ significantly from solutions to the sorts of questions — factual questions — that teachers usually ask students. Factual questions have an answer which is either right, the correct solution to the problem, or wrong, and not a solution to the problem. Their solutions are in knowing. The solutions to practical problems are in acting, and these actions can be the wrong actions. Practical problems must be phrased in the form "What should be done?" as opposed to

"What is there to do?" Once phrased in this form, practical problems can be seen to be normative, or ethical questions. It follows that all problems of practice, including those of teaching, are ethical problems.

If teaching is a moral activity, then a good teacher is virtuous. Aristotle wrote that

> ...since moral virtue is a characteristic involving choice, and since choice is a deliberate desire, it follows that, if the choice is to be good, the reasoning must be true and the desire correct; that is reasoning must affirm what desire pursues. [EN1139a 24] [1]

The good teacher does this by reasoning in the manner that results in good choices; where good choices are ones that result in virtuous actions.

Within this same Aristotelian tradition, that which is good can be defined in reference to that which is exemplified by that good. Alisdair MacIntyre in *After Virtue* has expanded upon this:

> ...to call x good...is to say that it is the kind of x which someone would choose who wanted an x for the purpose for which x's are characteristically wanted...[E]very type of item which it is appropriate to call good or bad — including persons or actions — has, as a matter of fact, some given specific purpose or function...To call something good therefore is also to make a factual statement (1984, p. 59)

Therefore a good teacher is one who does what a teacher is supposed to do: intervene ethically into the moral and intellectual growth of children.

Practical Reasoning

Because human activity varies greatly, Aristotle, in the *Nicomachean Ethics*, enumerated five types of wisdom and their associated types of

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[1] Unless noted otherwise, all references to Aristotle are from the *Nicomachean Ethics* translated by Martin Ostwald.

reasoning: art (*techne*), science (*episteme*), practical reasoning (*phronesis*), theoretical reasoning (*sophia*) and intelligence (*nous*). Artistic reasoning is concerned with production, scientific reasoning and intelligence are concerned with knowing, and theoretical reasoning is concerned with understanding. It is practical wisdom that allows a person to make good choices and to act on them. Aristotle described practical wisdom in detail in Book VI of the *Nicomachean Ethics*. Practical wisdom

> ...is concerned with human affairs and with matters about which deliberation is possible. [EN 1141b 7] Practical wisdom issues commands: its end is to tell us what we ought to do and what we ought not to do. [EN 1143a 7] ...right reason in moral matters is practical wisdom. [EN 1144b 28]

A person who makes good choices can be said to possess wisdom. John Elliott has defined wisdom as a

> holistic appreciation of a complex practical activity which enables a person to understand or articulate the problems (s)he confronts in realising the aims or values of the activity and to propose appropriate solutions (1989, p. 84)

The wise person can develop an understanding of the activity which is both deep and broad; that is to distinguish it within its context. And from there, propose solutions. Practical wisdom is exercised through *phronesis*, which is "a form of reflection concerned with translating universal[2] values into concrete forms of action in a particular situation (Elliott, 1987, p. 162)." It is the "intellectual excellence corresponding to and supporting the excellences of character, which in turn consist in the disposition to behave morally (Cooper,

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[2] Elliott's use of the term "universal values" does not require the person of practical wisdom to accept the existence of a single moral code that is independent of culture in order to engage in *phronesis*. However the person engaging in *phronesis* must have internalized a set of values if deliberation in the form of *phronesis* is to occur. This is made more explicit by Nussbaum (1986).

1975, p. 101). Martha Nussbaum has described the person of practical wisdom (i.e. one who is skilled in *phronesis*) as

> a person of good character, that is to say, a person who has internalized through early training certain ethical values and a certain conception of the good human life as more or less harmonious pursuit of these. He or she will be concerned about friendship, justice, courage, moderation, generosity ... (Nussbaum, 1986, p. 306)

Phronesis is an intellectual activity, a form of deliberation, which seeks to decide upon what action to take given the circumstances and the values of the actor (Carr & Kemmis, 1986). It is a process in which the deliberator chooses an action to take in order to solve a practical problem by taking into consideration, through reflection, the moral and ethical aspects, as well as the context, of the situation.

One way in which practical reasoning differs significantly from scientific reasoning[3] is that scientific reasoning is deductive and concerned with universals while practical reasoning is concerned with particulars (Nussbaum, 1986). The theoretical wisdom of scientists allows them to make sense of the physical world. They can develop theories and laws that can be generalized over countless cases to explain the behavior of inanimate objects. Even when the complexities of the behavior grows dramatically as in the microscopic movements of individual gas molecules, rules such as the kinetic theory of gases or modern chaos theory can be used to predict macroscopic behavior. The successes of scientific reasoning in the physical and biological sciences has resulted in the conclusion by many that it is the only useful way in which to try to understand the world. Because of this widespread acceptance and reliance on scientific reasoning to the exclusion of

[3] I will be using "scientific reasoning" to refer to not only *episteme* but also *sophia* and *nous*.

practical reasoning, I will now go through an analysis of the difference between scientific and practical reasoning, and will identify several ways in which scientific reasoning is not useful for the understanding of human affairs.

Scientific reasoning results in a type of explanation that has at its root prediction. In science, something is understood when a rule can be written which can predict the phenomenon. The usefulness of scientific reasoning is therefore dependent upon the predictability and regularity of the physical universe. Astronomy was the first great success of scientific reasoning because of the glaring obviousness of the motions of the celestial objects. People were absorbed by the simplicity of the motions of the stars and were intrigued by the complexities of the regular motions of the moon, the sun, and the planets. Over the centuries, scientific reasoning was used successfully to understand, within the same set of physical laws, more and more complex physical phenomena. As a result, the methods and reasoning of science appeared to be useful for the understanding of the most complex phenomena, human activity. But there is a systematic unpredictability to human activity which makes scientific reasoning only marginally useful. [MacIntyre 1984]

According to MacIntyre there are four sources of this unpredictability. The first is that radically new concepts, which have an impact on human activities, cannot be predicted. The example that he uses is the invention of the wheel. Suppose a person had gone up to another and said, "I predict that the wheel will be invented and radically change the way in which we transport ourselves and our goods." The second person would most likely have replied, "What's a wheel?" The only way in which the predictor could answer this question would be by inventing the wheel. In this same way, any prediction of a radically new concept would be its invention and not its

predication. A second source of this unpredicability is that individual choices about two or more alternative and mutually exclusive actions cannot be predicted exactly. We could say what a person would most likely do given the contingencies of the situation and the person's statements about what they would do in similar situations, but each situation differs in some way from any other, and the particulars of this new situation and significantly confounds the analysis.

Human activity is unpredictable in a third way: there is no determinate or numerable set of factors which totally comprise an interaction among people. One could imagine doing some sort of analysis in which a set of factors was identified which totally described the way in which a group of people interacted with one another. But this is impossible in situations where two people are playing a game with each other that is governed by some set of rules. In games of chance, the impossibility of doing this could be attributed to the randomness due to the throw of the dice or the shuffling of a deck of cards. But a chess game is also not exactly determinable and it always starts from the same states. The indeterminable nature of the chess game is not due to chess, but to the fact that it involves an interaction between two people. Lastly, human activity is dependent upon pure contingency; what Nussbaum has called *tuché* (1986). No matter how well planned or understood a human situation is, some unpredictable factor that is out of the control of the people involved could occur to change the dynamics of the situation. Because of this unpredictability of human activity, human behavior cannot be understood in the same manner as the physical world. Each new situation that arises can appear to be dissimilar to any other, and the rules developed in the social sciences apply only crudely at best (Nussbaum, 1986).

Scientific reasoning differs from practical reasoning in a second

significant way. Aristotle claimed that all animal and, therefore, human action is caused by desire and intention (Nussbaum, 1986). But scientific reasoning does not allow for intention as a cause. In scientific reasoning

> a demand for the explanation of animal movement [and therefore human action] is answered not with reference to desires, perceptions, and beliefs, but by mentioning the properties of some physiological entity (or entities) in virtue of which the entity is capable of imparting (causing) movement [or action] (Nussbaum, 1986, p. 269).

In this way, "intentionality has been altogether eliminated from scientific explanation. (Nussbaum, 1986, p. 270)."

A third difference between scientific and practical reasoning has been alluded to previously. In solving scientific problems, there is only one correct answer:

> If two beliefs conflict, the scientist assumes that at most one can be correct: he directs his efforts towards discovering which, if either, is, and towards getting rid of the false one (Nussbaum, 1978, p. 172).

On the other hand, there are multiple actions that can be taken to solve practical problems. One action might appear to be better in that it is more expedient, or another because it might take into consideration the needs of more people, but both could solve the practical problem. One does not preclude the possibility of the other: the possibility of one action solving the practical problem does not falsify others.

To summarize the distinctions between practical and scientific reasoning, practical reasoning differs in significant ways from scientific reasoning. Scientific reasoning is dependent upon the predictability of the phenomena that it is used to understand, while the subject of practical reasoning, human activity, is by nature unpredictable. Scientific reasoning calls for unique solutions to problems while practical reasoning allows for

multiple solutions. In addition, practical reasoning is concerned with human activity and is moral in nature. Given these differences, it might seem odd that in the next section of this paper, I will establish a parallel between scientific reasoning and practical reasoning. I will do this in order to come to a better understanding of the nature of *phronesis*. Scientific reasoning is familiar to, if not well understood, by many; by establishing this parallel, it will be possible to compare and contrast the two in detail. The idea of this parallel is not new: Aristotle did the same in *De Motu Animalium* (Nussbaum, 1978). While there has been some confusion over the millennia as to whether Aristotle was proposing a scientific theory of ethics (Nussbaum, 1978; Wiggins, 1987), the purpose of this parallel is solely to better understand practical reasoning — *phronesis*.

Practical Syllogisms

In *De Motu Animalium*, Aristotle introduced the form of the practical syllogism as a parallel to theoretical syllogisms. In *De Motu Animalium*, the practical syllogism serves as a model of a way to explain intentional animal activity, and to show that it is possible to produce an explanation that is adequate while being non-scientific (Nussbaum, 1978). The practical syllogism, just as the theoretical syllogism, consists of a major premise, a minor premise, and a conclusion. The theoretical syllogism serves as a way to validate and explain the conclusion, which is new knowledge. Practical syllogisms have similar dual functions for their conclusions: actions or goals. They serve

> as a model of explanation generally, and, in the case of human rational agents, as a schema for the justification of action, [and] often also for conscious deliberation (Nussbaum, 1978, p. 207).

Although the practical syllogism has the same form as the theoretical syllogism, they differ in important ways, which is to be expected. The two syllogisms are different in that the theoretical syllogism is used for validation while the practical syllogism serves to justify. This distinction is important because it is based on the difference between scientific and practical reasoning. The practical syllogism cannot validate its conclusion. If it were to validate, it would show that it is founded on truth or knowledge. The conclusion of the practical syllogism is an action (or goal) that is dependent on the beliefs and intentions of the actor and is neither true nor false. The practical syllogism rationalizes or explains the chosen action. In the theoretical syllogism, the conclusion necessarily follows from the premises: if the premises are true, then the conclusion is true.

The major and minor premises of the theoretical syllogism are universal facts. The conclusion is a fact that follows from the two premises[4]. The major premise of the practical syllogism is a statement that refers to a desire for some good that can be fulfilled through an action. The minor premise pertains to the circumstances in which the action will take place. It describes the restrictions and limitations on the possibilities of action that can be taken in order to fulfill the intention or desire of the major premise. The conclusion that follows is an action (or goal) that will fulfill the desire given the particularities of the minor premise (Wiggins, 1987). In *De Motu Animalium*, Aristotle gives several examples of simple practical syllogisms:

> when you conceive that every man ought to walk and you yourself are a man, you immediately walk...Again, I ought to create a good, and a house is a good, I immediately create a house. Again, I need a covering, and a cloak is a covering. I need a cloak. What I need I ought to make: I

[4] It is of course possible for the premises of the theoretical syllogism to be false, and therefore not be facts. In that case the conclusion might not be true.

need a cloak, I ought to make a cloak. And the conclusion 'I ought to make a cloak' is an action (Nussbaum, 1978).

Countless examples of these practical syllogisms can be written that refer to educational problems. The generic form would be:

Major Premise: I would like my students to attain a certain educational goal.

Minor Premise: The context of my teaching situation is as follows ... which restricts the actions that I can take in the following way...

Conclusion: Therefore I choose to take the following action...

The usefulness of the practical syllogism in educational practice is debatable. It is difficult to imagine a teacher consciously developing a major and minor premise to arrive at the best action to take or the best goal to set. But it should be clear that it can serve as a model for analyzing teachers' actions and understanding their behaviors[5].

Practical Theories

A theory is a more complex explanatory tool than the syllogism. Paul Hirst has defined a theory as "a hypothesis or logically interconnected set of hypotheses that have been confirmed by observation (1983, p. 3)." Jack Whitehead has defined a theory as "a good explanatory framework which can generate description and explanation from empirically observed regularities and the behavior of individual cases (1989, p. 41)." A theory is a set of statements which fulfills an explanatory function and is related to that which is being explained through observation or experiment. A practical theory, to continue the parallel, should also be a more complex explanatory tool. But

[5] The notion of the practical argument developed by Gary Fenstermacher, extends the concept of the practical syllogism in order to use it to explain more complex teacher actions.

while a scientific theory fulfills an explanatory function, the practical theory is an aid in decision making, that is, it helps the teacher[6] choose which action is best suited to reach a goal or to choose which goal is best. In this way practical theories can best be seen as guidelines or rules-of-thumb while scientific theories operate as rules: given a set of conditions to which a rule applies, there is only one outcome. Practical theories are more useful than practical syllogisms. They can serve to do more than aid in understanding why a teacher or any individual has acted in a particular manner. They can, in fact, be used to guide behavior.

The notion of practical theories has been examined by Sanders and McCutcheon in their paper "The Development of Practical Theories of Teachers (1986)." They have described three ways in which practical theories are like scientific theories:

> 1. They are claims-to-know -- propositions or statements that are held to be true...
> 2. They are empirical claims-to-know...theories can be tested...
> 3. They are falsifiable... ([1986, p. 48)

I will look at each of these in turn. First, practical theories are not claims-to-know in the same way as scientific theories because action is the domain of the practical, not knowledge. What practical and scientific theories share in this regard are that they are both claims-to-understand: they are both frameworks that aid people in their conceptualization of human and non-human activity.

Secondly, as with scientific theories, practical theories must be grounded in observation:

> practical theories...in some ways parallel scientific theories: they designate what is taken to be important in a given situation, single out for attention certain features of 'reality' and relationships among them,

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[6] From this point I will focus on teaching, even though the following argument will hold true for all problems which can best be solved using practical reasoning.

> and denote those features with particular concepts (Sanders & McCutcheon, 1986, p. 56).

But they are not empirical in the same sense as scientific theories.

Both practical and scientific theories are claims-to-understand and are empirical, but practical theories are not falsifiable in the same way in which scientific theories are. Scientific theories, in a Popperian sense, are only falsifiable; they cannot be proven to be true. One negative result will result in a modification or rejection of the theory. As scientific theories are tested, and are repeatedly found not to be false, our confidence in them grows. For a practical theory, the reverse holds. One negative result[7] does not necessarily result in either its modification or rejection. Instead, as the number of false results increases with repeated testing, the lack of confidence in the practical theory increases until a person sees that it should be modified or discarded.

Practical theories are the conceptual structures and visions that help to provide teachers with reasons for actions (Sanders & McCutcheon, 1986). Why do teachers need these conceptual structures, visions, guidelines, or rules-of-thumbs to guide their behavior? A return to Aristotle's *Nicomachean Ethics* can help to answer this question. If the problems of education were scientific, and since "all scientific knowledge is held to be teachable, and what is scientifically knowable is capable of being learned," [EN1139b 25] then the task of learning how to be a teacher would be greatly simplified. But educational problems are practical problems and are not teachable in the same way. A teacher needs to learn how to be a person of practical wisdom:

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[7] A negative result for a practical theory would be an action or goal chosen that does not help to solve the problem.

> ...the [person] of practical wisdom is the most flexible among us, his [or her] moral sensibility the least ossified by obedience to the universal...the truly moral [person] will be not only imitative, but creative, seeing keenly into the confusing 'matter of practical affairs' and shaping our discriminations (Nussbaum, 1978, p. 216).

One does not learn how to be flexible by memorizing a set of immutable rules, or even by learning how to invent new immutable rules of the form of scientific theories. What is needed is to be taught how to do *phronesis*. Nussbaum claims that this is teachable through reflective moral education. She makes this claim based on the utility of practical theories:

> for people not yet possessed of practical wisdom and insight need to follow rules [of thumb] that summarize the wise judgments of others...[Practical theories] are necessities because we are not always good judges (1986, p. 304).

To be good judges means to be able to make right choices within the context and particularities of the situation: that is, teaching in context.

> The knowledge useful for teachers in carrying out this task [teaching in context] is practical information organized in the form of a repertoire of practices, strategies, and ideas that are effective for those teachers in that particular setting (Sanders & McCutcheon, 1986, p. 50).

We can now get a better idea of what a practical theory looks like. First, they are indefinite, they have no specific limits and are not confined to a particular context because of the nature of practical problems. Since practical problems are context-bound, any practical theory must be mutable, indeterminate, and particular. As a result, practical theories cannot be part of a system of universal rules (Nussbaum, 1986; Wiggins, 1987). Aristotle suggested this in the *Nicomachean Ethics*:

> For when the thing is indefinite, the measure of it must be indefinite too, like the leaden rules used in making the Lesbian moulding. The rule adapts itself to the shape of the stone and is not rigid... [EN

1137b27-32]

Practical theories can be accommodated to the particular context.

The form of the practical theory does not govern its use: the context determines the utility of theory. Thus, a second aspect of the practical theory which directs its form is that the utility of practical theories is determined by the context. The particularities of the situation in which the practical theory can be applied act in a normative way to assess the correctness of the practical theory (Nussbaum, 1978). In this way it can be seen that context governs the practical theory and not vice versa. A third feature of practical theories that directs their form is that they should be stated in a way that allows them to act as authorities against which the appropriateness of particular decisions can be assessed. When formulated in these ways, practical theories aid in moral learning, save time, and are resistant to the passion of the moment (Nussbaum, 1978).

Practical theories arise from life histories and from ethical and moral lessons. These ethical and moral lessons are found in literature, religion and the popular media. Practical theories are shaped by life experience, professional experiences, the stories of others, and by reflection on personal experiences and the experiences of others. Any teacher, whether novice or experienced, enters the classroom with a set of practical theories that has arisen through these avenues. Sanders & McCutcheon (1986) suggest that new practical theories can be developed through a process of practice-centered inquiry. In this process, the teacher first encounters a new idea and tests it conceptually. If it passes this first test, the teacher tries it out in the classroom, and then reflects on and interprets the experience. The teacher then decides whether to use it in the future, to modify it, not to use it, or to search for an

alternative idea to reach the same end. This is quite similar to the methods of action research and reflection described by others (Elliott, 1987; 1989; Carr & Kemmis, 1986; Zeichner & Liston, 1987).

Practical Paradigms

Practical theories arise from all aspects of experience. Student teachers as well as experienced teachers enter the classroom with a set of practical theories that have ensued from many influences, including the years spent in the classroom as students. As a result, practical theories can be difficult to change. For example, Zeichner and Liston (1987) found that even though the teacher education program at the University of Wisconsin-Madison was developed and enacted around the idea of teachers as reflective practitioners, there was little change in what I would call the practical theories of the student teachers over the course of the year. The tenaciousness of some practical theories is due to the nature of practical theories themselves. Because they are not isomorphic[8] with the actual world, there is a loose fit between these theories and practice. In order to fit particular contexts, they will be modified by practitioners in the field as they gain experience. It is possible that a practical theory could go through multiple modifications resulting in a new rule-of-thumb. However, the more tenacious practical theories resist significant modifications. Some examples of extremely resistant practical theories are: the Golden Rule — "Do unto others as you would have them do unto you."; "Do not kill other people."; and "Parents should care for their children." Somewhat less tenacious are: "Students must wait their turns." and "Only students who raise their hands will be recognized." When the actions suggested by these practical theories do not

[8] In mathematics, two functions are isomorphic if they have a one-to-one correspondence. I am using isomorphic in the same sense: the sets of rules-of-thumb that make up practical theories correspond only approximately with the contexts and situations of practical problems.

result in reaching the desired goal, the person applying them might choose a different action instead of modifying the practical theory. It is possible that the practical theory is so durable that the person will unsuccessfully attempt to reach the goal numerous times by applying the no longer appropriate practical theory. Even when reflecting on the situation, the person will overlook the inapplicability of the practical theory and continue to choose actions based on that practical theory. When viewed in this way, these more tenacious practical theories bring to mind the characteristics of paradigms as described by Thomas Kuhn in *The Structure of Scientific Revolutions* (1970). Following the parallel between practical and scientific reasoning established previously, I will refer to these sets of somewhat more permanent practical theories as practical paradigms. Practical paradigms are analogous to the scientific paradigm described by Kuhn in that they are shared by a community. In some ways they become the ethos of that community into which newcomers are indoctrinated. For example, Tabachnick found that even though intern-teachers'

> early experiences in schools were shockingly disillusioning...after a year's experiences, interns seem to be creating a reality which replaces, or at least suppresses, their early disillusionment. They find reasons to accept teaching behavior previously thought to be ineffective or inappropriate (1980, p. 133).

The year's experience has acted to inculcate the interns into the world view of schooling; a world view that includes numerous practical theories and resistant practical paradigms.

Practical paradigms are also analogous to Kuhn's paradigms in that they are in a sense equivalent to "concrete puzzle-solutions which...can replace explicit rules as a basis for the solution of the remaining puzzles...

Kuhn, 1970, p. 175). The practical paradigm serves as a template for problem solving into which the particularities of the situation are molded. In this way it is quite different from the practical theory which should be readily mutable to the situation. I claim that when using a practical paradigm, the practitioner selectively identifies those aspects of the context which allows him or her to use that practical paradigm even though it is inappropriate and should either be modified significantly or discarded completely. But in order for the practitioner to see this, a "practical revolution" must occur that will result in a practical "paradigm shift."

In the next section of this paper, I will examine cases in which two teachers applied practical paradigms. In order to do so, it is important to be able to recognize when a practical paradigm is serving as the rule of operation. Practical paradigms are quite tenacious; teachers do not easily modify them. They are shared by a community, and are therefore supported by other teachers in the same school. They are applied in situations for which they are inappropriate, and their existence can cause teachers to be extremely selective in their observations of the situation and analyses of the problems.

In trying to understand the actions of the teachers in the case studies, it is important to place them within their communities and the practical paradigms of those communities. Aristotle has argued, according to Nussbaum, that

> part of being a rational adult...is behaving in such a way that your actions conform to some specifiable and relatively systematic picture; and we will not have offered an adequate account of such a man's [or woman's] behavior until we have placed the particular action in a larger pattern of the sort (1978, p. 208)

By identifying the practical paradigms of these three teachers, we will have begun the process of illuminating that larger pattern.

Case Studies

I will examine two cases in which the same practical paradigm was used: the paradigm of the fixed grading policy. The first case is of an intern teacher for whom the practical paradigm was immutable. And in the second case, a novice teacher with one year's experience as an intern who has begun to question the paradigm.

Case Study 1: Frank[9]

Frank began his intern year in a parochial school teaching chemistry. There were a number of chemistry positions available and he had had several interviews, but for a variety of reason he had chosen St. Thomas. His teaching assignment was two college preparatory chemistry classes, each with approximately 30 students. Early on in the year it became clear that students were not doing well in his classes. During the middle of the first quarter he sent 25 deficiency notices (expected grade of D or F) home to the students' parents. Students were concerned about the low grades, especially during their junior year, because of the effect that they might have on their college plans. Guidance counselors responded to the students' concerns, then the department chair, who was Frank's resident supervisor, then the vice principal, and finally the principal of the school. Just before the first quarter's grades were to be sent home to the parents, Frank was dismissed from his internship position by the principal for refusing to follow the school's grading policy.

During this time, Frank was using several rules-of-thumb which constituted a practical paradigm centered around the notion of a grading policy. To Frank,

a grade is supposed to be what students earn...[and] as far as what is an

[9] The quotations in this case study come from an interview with Frank on August 24, 1990.

> A and what is a B and a C, I think that came from my upbringing and background: that an A is outstanding, that a B is very good, that a C is average.

In other words, he was operating under a practical paradigm that students need to perform at a certain level in order to get a certain grade. It was clear to him what levels of performance and what bench marks constituted these different grades. First, he had no doubts about the level at which he was teaching the material. Even though the students responded extremely to their poor performance on the first quiz, ("...the actions from the students [when Frank handed back the quiz] would be 'Oh my God!'...like their life was on the verge of catastrophe...") Frank "couldn't really quite understand why that was so because [he] was literally going very much by the book." And, second, he would not consider changing the level at which he was teaching:

> I was not at this point, or ever as it turns out, prepared to make the class a rinky dink class...What I was willing to do was to keep the level of rigor at what I thought was appropriate.

Frank was aware that the grades depended upon more than the students' efforts, and that they will "vary depending upon how smart the class is, [and] how effective you are being as a teacher." But even though he decided quickly at the beginning of the school year that

> ...the students were generally not above average students and that the school was very much de-emphasizing academics. [That it] was a sports oriented school, and a social party oriented school, and...that it was not an academically oriented school.

he did not question his own expertise as a teacher. At one point the department chair had a discussion with Frank about the problems of being a new teacher. Frank's response was to be offended because the department chair was "politely telling me that I didn't know what the hell I was doing."

During the ten weeks that Frank spent at St. Thomas, he received feedback and advice from a number of people: the principal, vice principal, science department chair, other teachers in the school, the guidance counselors, students, and the his supervisor from the teacher education program in which he was enrolled. It is interesting to look at how he incorporated or ignored the advice and feedback depending upon whether or not it supported the practical paradigm under which he was operating.

The principal told Frank that he needed to raise the average grade in his classes. He talked to Frank about the relative nature of grades, and that Frank, as a new teacher, needed to learn how to teach and grade more appropriately. Frank chose not to act on the principal's advice (and eventually his order to raise the grade). He justified this by noting that

> ...the principal was very young. I think that he was probably 32 or 33 and he was only the principal because the previous principal died or something suddenly and so he was kind of interim principal for a year. And then I think they liked him so they kept him on...So he was very inexperienced as a principal which may or may not explain what happened to me.

Frank saw the vice principal as an ally and supporter of his practical paradigm. She asked to see Frank after he had sent off the deficiency notices.

> ...she told me that she was concerned that I had sent out all these deficiency notices, that she had heard complaints from the guidance counselors and students that my class was way too hard...and she said, "I'd really like to help you try to improve the performance of your students...I really support you with what you're doing. I think it's great that you're trying to be rigorous with the kids...you're the kind of teacher that we want here at St. Thomas...

In addition, when the students handed in lab reports that did not meet Frank's standards, she agreed with him, and went into his class to speak to

the students about their work. "She really was vicious with the kids...she even made one boy in one of my classes start crying when she ripped his lab report out of his hand and walked right up to him and said "This is garbage." It was clear to Frank that he had the support of the vice principal, and consequently, the support for his practical paradigm. She had endorsed his desire for rigor and confirmed his supposition that the students were not performing up to their capabilities.

The guidance counselors responded early on to the students' complaints. They told Frank that

> the kids are wanting to drop my class in droves and go to the classes of another chemistry teacher...[T]hey told me that my class...was way too hard, way too much work, that [the students] were struggling...that they were panicking after two weeks of the class... and that they were going to ruin their grades...Very quickly I was being pressured that my class was too too much for the kids to handle.

Given Frank's reluctance to accept any of the cause for the students' problems with the class, it is easy to see why this exchange resulted in Frank's assumption that the guidance counselors were "out to get him."

This assumption was, however, supported by another teacher in the science department who remarked to Frank that "All the guidance counselors have told me that the pressure is off of me this year. And you're the new person that all the pressure is going to be on." She told Frank that in the past two or three years she had been under pressure from the school's administration because her grades were too low. Frank saw her as a "friend, an ally...in the department...who was a rigorous and demanding teacher." Again, this support helped to confirm his practical paradigm.

Frank's resident supervisor was the science department chair. Frank considered him a "real buffoon" who was acknowledged to be a not very good

teacher, and who taught biology and "didn't know anything about chemistry." It was the department chair's responsibility as his on-site supervisor to act as a mentor, and help Frank ease into his first year of teaching and to come to understand the culture of St. Thomas. It was the department chair who told him that his grades were too low, and showed him the printed grading guidelines that the teachers were supposed to follow. During this same meeting they discussed ways in which Frank could help the students achieve better grades, including the possibility that Frank, because of his being a new teacher, did not know how to judge what was too easy or too hard for the students. Frank's response was that he was going by the book, that he was not adding any advanced topics.

> And [the department chair] kind of said, "Well, you know, you need to devise methods to get your students from point number 1 to point number 2 and maybe you're not explaining things as clearly as you should. And you know, take them in small little steps instead of one big step from one idea to another..." And I said that I've broken down dimensional analysis into a series of logical concrete steps that they can follow as a prescription to solving these kind of problems...And so things went on...

Frank was not willing to work with the department chair. He had decided that the department chair would not be able to serve as a mentor. This decision might have been valid to some degree because of his lack of expertise in chemistry teaching, but by accepting the department chair's advice in one area, it would have required Frank to accept the school's grading policy, which would have rejected his practical paradigm.

There were two other teachers in the science department, both of whom taught chemistry. One was the advanced chemistry teacher, who was "very well respected and had...majored in chemistry or physics and had a lot of years of experience." Unfortunately Frank did not consider going to him

for advice until it was too late[10].

> Frank had a very low opinion of the other chemistry teacher:
>
> And this other teacher was, I think, one year out of college or two years out of college. So he was like 24 and I was in my late twenties so I was quite a bit older than he was and he had not gone through a teacher credential program at all...So he was kind of winging, I think, teaching chemistry...[A]nd it had been my impression from talking to him and from talking to other students and teachers that the other chemistry teacher was kind of a powder puff, kind of fluffy teacher who wasn't very serious about teaching the stuff...[O]ne of his famous things was Mole Day...and on Mole Day he had all the kids dress up in costumes like moles and stuff...I looked at...a whole file cabinet of his old tests and stuff and I looked through them and they were just really very simplistic and I thought that was much too easy for a chemistry class in a college preparatory high school...

This other chemistry teacher did not teach chemistry in a way that was acceptable to Frank; he treated the subject in an off hand manner that denigrated it in Frank's eyes by not being rigorous enough. By viewing him in this way, Frank was able to discard this teacher's alternative grading policy and corresponding practical paradigm.

Supervision was occurring through both on-site and university supervisors. Frank had decided that the on-site supervisor was not helpful. What of the university supervisor? Unfortunately, he was not much of a presence in this whole affair. He began to work with Frank during the 4th week of the school year because of the different starting times of the university program and the school year. By that time the situation might already have gotten out of hand. At one point Frank showed a test which had been identified as "too hard" by St. Thomas to his university supervisor who "thumbed through it and his only comment was 'This is too easy.'" Frank felt

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[10] Why was Frank not urged to meet with this teacher earlier? It is not clear to me whether or not he was. The point for teacher educators might be that at times it is important to require, not just suggest or urge, that some action be taken by a student teacher or intern.

"kind of vindicated." After the crisis had evolved, the supervisor and administrator of the university program sat down with Frank to devise a plan to raise his students' grades. But by then the principal was concerned about grades for that first quarter and the plan would not have affected those grades.

And so, Frank stuck to his guns and did not modify his practical paradigm. He either ignored suggestions that would have had him change it or denigrated the people who made those suggestions. To him, it was a matter of principle:

> ...it was my understanding throughout life that the average grade in a school is a C and so kind of my personal philosophy that the average grade was a C coming into direct conflict with the average grade at the school being mandated to be a B...I would be very happy to give the average grade of a B to my students if I thought that they were doing what I considered to be B level work.

Frank's grading policy was a practical paradigm. It was tenacious to the utmost: Frank stood by it even though it cost him his internship position. To Frank it was immutable. His practical paradigm had been defined throughout his life and could not be changed. He had a community, albeit small, which shared it. He applied it in St. Thomas School where it was clearly inappropriate, and it caused him to be blind and deaf to all who sought to help him change his paradigm.

Case Study 2: Bob[11]

Bob taught geometry and trigonometry in a suburban high school that is not known for academic excellence. During his first year of teaching after his intern year, he found himself faced with the problem of only a few students in each class doing their homework problem sets: "...in the first week of school...I was picking up homework from the kids and out of a class of 30 I

[11] The quotations in this case study come from an interview with Bob on August 21, 1990.

had 5 actually do their homework." In response to this he decided to implement a set of rules that would encourage his students to complete their homework:

> I told them if you don't do your homework now, it's a problem. You can't just blow it off. And if you do blow it off...you're blowing off not just yourself, but you're blowing [off] me, yourself and your parents. I'll expect you to come in that day and make it up in my room. And if you don't come, I'm not going to assume the worst. I'll assume you had a good reason not to come but I'll call home and see if I can make arrangements with your parents about it. And that worked.

By requiring students to attend an after school session to make up the homework, calling parents if the students did not show up, and by having the homework count as much as tests, Bob had gotten his classes to the point "where it was 1 or 2 kids a day in each class blowing off work rather than 3 or 4 actually doing it." But this caused a secondary problem for Bob. By having the homework count as half the total grade, there were some students who were passing the course even though they had a failing test and quiz average. Bob's solution to this problem was to add one sentence to his grading policy: "If you don't have a passing test and quiz average, you won't pass this class."

He was concerned that this could cause a situation where a student could be doing excellent homework, be maintaining a passing test and quiz average, and then do so poorly on one test that the student's test and quiz average would fall below 60% resulting in the student failing the course. As a way to get around this, he allowed students to make up all work and to take retests after reviewing the material with him. As a result of this new policy (which was instituted at the beginning of the second semester) between 3 and 5 students failed each class at the end of the year while there had been 2 F's per class at the end of the first semester.

Bob's reason for this new rule was that a student needs to demonstrate to him through tests and quizzes that they can perform at a certain level: a level which was determined by tests that Bob made up. It was the application of this rule that resulted in two instances where Bob's practical paradigm of grading policy was challenged. The first was of a young woman named Sarah in his trigonometry class. Although she did not have a passing test and quiz average, her other work, and especially her homework, was "beautifully done every night" during the first semester. But Bob saw that Sarah

> just couldn't do it...She was in a trigonometry class and didn't know what order of operations was. She didn't know that the letters "s," "i," and "n" stood for a function and not for algebraic variables. It wasn't my teaching. It was her previous background.

Sarah was in trouble because of the grading policy instituted during the second semester. She needed to have a passing test and quiz average in order to pass the course; she had found that to be impossible during the first semester. Complications arose. First, Sarah was out from school because of mononucleosis and hepatitis. Then one of her best friends was killed in a car accident. Sarah came back to class on the day of a test after having been out for almost two weeks. She brought a note from her mother suggesting that she be excused from the test. Bob urged Sarah to take the test:

> I told her that if she wanted to make it up [the material that she had missed while absent] she would have to give her best shot on the test even though she wasn't there for the chapter. I told her that I wanted her to just try it. "Just don't sit here and not do anything. I want you to just try it. Just try." And she tried and she got something like 4 points out of 96 points on the test which was understandable because she hadn't had the material.

Why had Bob required this young woman or 16 or 17 years of age to sit down

and take a test for which she was obviously not prepared her first day back from school after her close friend died and she was recovering from two diseases? The answer is that he was applying a practical paradigm: No exceptions and no excuses.

> I basically tell my kids, especially these kids in this school with the number of problems that they have and will continue to have throughout the rest of their life, that the world is a hard place to be in and it's going to throw them curve balls all the time...What I feel if I were to say to her, "Oh, look, you were sick and your friend died and you had mono and all this other stuff so it's okay." I would get myself into a judgement thing where I would start doing that for every kid and then if a kid came in and told me, "Well, I have a severe personal family problem, can you give me an extra week to make this up?" I would have to say yes because I told the other girl, yes, it was okay for her to have the extra time...I just don't want to get into that. I want to avoid the whole issue and I just tell them no...That's my reasoning. And it is cruel. It's very cruel. I know that...It hurts to say it. But you can't let them use their misfortunes and mishaps as an excuse. You just can't. The world doesn't work that way. It just doesn't.

The problem with Sarah was resolved by her doctor writing a note to the school stating that she would be under too much stress to continue in the class. Bob let her withdraw from the class with no grade and no credit just before the end of the year.

Bob's grading practical paradigm was challenged by an instance with another young woman, Kristin. Kristin was enrolled in Bob's geometry class and had a C average during the first semester even though she did little homework. Bob suspected that she was "weak in her geometry and had spoken with [her] parents and [Kristin] several times about how she had to change her work habits." Kristin was re-enrolled in Bob's class during the second semester, and he continued to call home about homework.

> After about the 5th or 6th time this happened over the course of, I

> don't know, a couple of months; the parents started saying to me — not in a hostile way but in a just kind of I don't know, surly way — "Well, I think we've informed you on several occasions that Kristin has a part time job after school on Tuesday and Thursday and therefore she won't be able to, she can't come in and make up the work with you."

In the next telephone call, Kristin's father gave Bob some teaching tips based on a television show that he had seen. Bob found these remarks "snide and inappropriate" and did not call again after that. However, he continued to send home progress reports which indicated that Kristin was receiving an F in the course. With a month and a half left in school, her parents became more concerned. Kristin had been elected president of her class and would not be able to serve if her GPA was too low. This was her junior year and there was the question of college. She also needed to pass geometry for acceptance into a state college. A conference was arranged between Kristin's parents and Bob.

> And we had the conference and we looked at the percentages. And at the time the girl had a 45% test-quiz average and I said she has another 15% to go. [Her parents] said she always does her homework now. And by that time the girl really was doing the homework...[but] she would need to do a 75% or better on the remaining tests or quizzes in order to get a passing grade in class.

Even though Kristin did begin to put more effort into her work, came in to see Bob for extra help, and even got an A on one quiz, "on everything else she just bombed." Her final grade was an F. Kristin's mother responded by calling the department chair on the last day of school and, according to Bob, told her

> My daughter is not an F student. F students are students who don't come to class and don't try to do their work and have a bad attitude toward the teacher and give the teacher a hard time. My daughter doesn't do any of these things and therefore she deserves at least a C in

the class.

Bob objected to this definition of an "F student."

> A grade to me is not a value judgement. It often is correlated with kids that we don't like as teachers because...they have habits that are counter productive and you know they aren't learning things...When you give a student an F it's not a value judgement that says this student is a bad kid...What we're telling you is that your daughter has not demonstrated that she knows very much about geometry. And given that she's had all semester to make up this work and chose not to make up 6 or 7 out of the 11 tests and quizzes and given that she has not been doing her homework consistently, there's not much that we can tell you now. It's too late. She had her chance and she blew it. She chose to go to work so she can pay for her car insurance and gas and all that kind of stuff and that's tough and that's it.

Bob's practical paradigm was extremely durable. In these two cases he applied a practical theory that was no longer appropriate. In the case with Sarah, he appears heartless and cruel even though he has spoken to me about how much he cares about his students. And in the case with Kristin, he was forced into a confrontational situation with her parents that could cause his being censured. By staying too fast to the rule, and not looking closely enough at the particularities of each case, Bob was blinded by his paradigm and was not able to determine appropriate choices. He does not fit Elliott's definition of the wise person.

But Bob has begun to question his paradigm. It concerns him that he might seem (or be) over zealous: "[Sarah's parents] told me that I was over zealous in my goals with my kids. They told me they thought I was just over doing it." I mentioned to him that from what he had told me, Sarah's parents might have good reason for their comments. He replied,

> I know, I know. But remember that you're seeing extreme cases here. You have to keep that in mind...That these are the extreme examples

> that I'm not happy with either. I mean I'm not happy about the way that this whole thing came out.

But more importantly, he came to me because he "wanted moral support..." He doesn't want to be overzealous, he doesn't want to be cruel, and he wants "his kids" to be successful. These are conflicts that arise between his practical paradigm and the context in which he is applying them. He can continue to apply it inappropriately, or some event or chain of reasonings could occur that would result in a practical revolution.

Changing Practical Paradigms

It has been suggested that teachers develop new practical theories through a process of practice-centered inquiry. This can be seen as simply a teacher having something in mind, trying it out, and the judging its success or failure (House, Lapan & Mathison, 1989). It can also be described as a more complex process of analysis, action, reflection, and reanalysis (Carr & Kemmis, 1986). What is suggested is that teachers learn to teach, that is acquire practical wisdom, through this empirical method. Liston and Zeichner describe how this aids in pre-service teacher education. This reflection

> incorporates moral, ethical and political principles and criteria such as justice, equality and freedom into the discourse of educational thought about practical action. This conception of reflection legitimizes a notion of responsibility where student teachers can begin to identify connections between the level of the classroom and the wider social structural conditions that impinge upon the classroom and so enables them to choose among alternative courses of action in light of the social, political, and moral implications (1987, p. 3).

How can teachers change their practical paradigms? David Wiggins suggests that

> ...a man's [or woman's] reflection on a new situation that confronts him may disrupt such order and fixity as had previously existed and bring a change in his evolving conception of the point or the several or

many points, of living or acting... (1987, p. 232).

While this sort of reflection or practical inquiry can help to develop practical theories, it is not enough in itself to cause shifts in practical paradigms. When a teacher tries to imagine solutions to problems and seeks to choose desirable actions, a huge repertoire of cases serve as models to draw upon; cases from experience in the classroom as both teacher and students, and models from other life experiences (Elliott, 1989). As Nussbaum reminds us, we do not confront any new situation "itself by itself." Instead we face it with "desires informed by deliberation and deliberations informed by desires" and react to it "in both passion and act (1986, p. 308)". Unless the person reflecting on the action allows for the possibility of a change in their practical paradigms, it will remain immutable. As can be seen in Frank's case, the vagaries of practice make it possible to choose one's practical evidence "data" so that an inappropriate practical paradigm can continue to be supported. Frank did reflect on his actions, but his practical paradigm did not change.

Kroath suggests, from an analysis of a case, that a teacher's practical theory

> can change through an intuitive-holistic insight process into its explicit structure...It is the result of a self-discovery process facilitated by adopting the role of an empirical, distant observer of one's own behavior (1989, p. 67).

By how does one become a "distant observer of one's own behavior?" Whitehead claims that the process that needs to occur is for us to see the "living contradiction of our own 'I's (1989)" and that this can be facilitated through the video taping of our own teaching and then viewing it critically. But I fear that the teacher, seeing the contradiction between who he or she wants to be and the reality of the contradiction, would collapse like Don Quixote at the sight of himself reflected in the shield of the Knight of Mirrors, and seeing him or herself as a mockery of a teacher, would abandon this or

her quest: teaching (Leigh, 1966).

Then how can teachers change their practical paradigms? In practical reasoning, the teacher is choosing what sort of action to take in order to solve an educational problem. The choice is based upon both the context and the ethical values of the teacher. In general this is done by examining the context and seeing how to modify the particularities of the situation through action. In order to effect a paradigm shift, both the value and the situation need to be evaluated. This requires the teacher to reflect upon what he or she considers to be good. As with other aspects of practice, the notion of what is good in teaching generally remains tacit and unarticulated. Frank did not examine this, and Bob only just began to question whether his actions were good. The result is that teachers identify certain goals or actions as good because that is what they wish to do, instead of choosing actions or goals because they will help move towards the good (Wiggins, 1987).

What needs to happen in order for a practical revolution to occur and result in a practical paradigm shift is for the teacher to begin to question her or his own values and beliefs. The teacher needs "to become aware of problematic pre-judgements and to criticize them in the light of new meanings (Whitehead, 1989, p. 50)." A person who is capable of doing this has reached the third, and final stage in the Aristotelian theory of moral development:

> Initially, a child acts on a few impulses which demand immediate satisfaction without (much) control over their promptings. As he [or she] grows older he [or she] acquired a wider range of desires, which include a taste for the satisfactions of being kind, generous, fair, truthful, etc. At the same time he [or she] develops the ability to order and control his [or her] desires in accordance with the value he [or she] accords each. It is only later, when he [or she] has plenty of experience of life, that he [or she] engages intellectually with what might be called the 'theory' of ethics and turns his [or her] mind seriously to questions about why he [or she] should act in some ways rather than in others

(Tobin, 1989, p. 201).

The person in this final stage lives a life which is virtuous through reflecting on one's experiences, critically analyzing the values previously acquired, and to search for new ones if necessary. This person has practical wisdom.

Teacher education, both pre- and in-service, should then include a component that seeks to develop individuals morally and ethically. But as Nussbaum reminds us

> ...we begin the educational process not with a creature who is simply there to be causally affected and manipulated, but with a creature that responds selectively to its world via cognition and [desires], and whose [actions] are explained by its own view of things, its own reaching-outs for things as it views them (Nussbaum, 1986, p. 285).

Teachers act in ways that are in accordance with their own view of the good. A teacher education program can help teachers learn how to actively modify their views of the good and to search for more appropriate practical paradigms based upon that good. This can be done through examination of cases, bit I would suggest more effectively through critical and collaborative action research, where teachers can examine their practices, modify them, and criticize them in concert with their peers resulting in changes in their practical paradigms.

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